



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,583	08/19/2003	Nigel M. Grech	54547.8001.US01	5209
34055	7590	03/03/2006	EXAMINER NAFF, DAVID M	
PERKINS COIE LLP POST OFFICE BOX 1208 SEATTLE, WA 98111-1208			ART UNIT 1651	PAPER NUMBER

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/644,583

Applicant(s)

GRECH ET AL.

Examiner

David M. Naff

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-24 is/are pending in the application.
- 4a) Of the above claim(s) 23 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/22/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1651

DETAILED ACTION

A preliminary amendment of 8/19/03 amended the specification, and a preliminary amendment of 1/22/04 canceled claims 1-21, 25 and 26.

Claims in the application are 22-24.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claim 22, drawn to a hydrophobic composition containing a combination of charcoal and *Bacillus subtilis* that results in uniform and efficient distribution of the composition over the surface of and into water, classified in class 435, subclass 174.
- II. Claims 23 and 24, drawn to a method for controlling algae in water and to a method of delivering microbes to water, classified in class 210, subclass 616.

The inventions are independent or distinct, each from the other because:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case, the product can be used in a different process, such as fermentation to produce a biochemical.

Art Unit: 1651

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

5 Examining inventions I and II together will be a serious burden due to different searches and different considerations in applying prior art required due to differences in claims of the different inventions.

10 During a telephone conversation with Mr. James Zhu on 12/16/04 a provisional election was made without traverse to prosecute the invention of Group I, claim 22. Affirmation of this election must be made by applicant in replying to this Office action. Claims 23 and 24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

15 Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a
20 request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

25 The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed a nonelected process invention must require all the

Art Unit: 1651

limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Claim 22 is examined on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C.

112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is confusing and unclear as to the form of a combination of charcoal and *Bacillus subtilis* that will result in uniform and efficient distribution as claimed. The specification fails to clearly describe the form of each the charcoal and *Bacillus subtilis* prior to and after combining, and the procedure used for

Art Unit: 1651

combining. In Example 1, the specification merely sets forth that strains of *Bacillus subtilis* were formulated with charcoal. How the strains are formulated with the charcoal is unclear.

Claim Rejections - 35 USC § 102

5 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

10 (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in
15 section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 22 is rejected under 35 U.S.C. 102(e) as being anticipated
20 by Iijima (6,365,384 B1).

The claim requires a hydrophobic composition for use in controlling algae growth in water applications comprising charcoal and *Bacillus subtilis*, wherein the combination of charcoal and *Bacillus subtilis* result in the uniform and efficient distribution of the
25 hydrophobic composition over the surface of and into the water application.

Iijima discloses a mycelial carrier-support comprising a combination of 80-95% by weight charcoal and 5-20% by weight of a mixture of fungi and *Bacillus subtilis* (col 8, lines 59-67).

30 The mycelial carrier-support disclosed by Iijima is a composition that is the same as the composition presently claimed. The mycelial

Art Unit: 1651

carrier-support is inherently hydrophobic due to the presence of 80-95% charcoal, and is inherently capable of uniform and efficient distribution over the surface of and into a water application. The claim does not exclude a fungi in combination with *Bacillus subtilis* as disclosed by Iijima. The present specification indicates (paragraph bridging pages 5 and 6) that the claimed composition can contain a combination of fungi and bacteria.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1651

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mehta (6,057,268) in view of Yamasaki et al (5,676,836) taken with DeFilippi (5,580,770) or Bair et al (5,486,292) and taken with Iijima (5,196,042), and if necessary in further view of Walker et al
5 (6,322,782 B1) or Hiatt (6,025,152).

The invention and Iijima are described above.

Mehta discloses a composition containing an aerobic microorganism for treating water for control of organic pollutants and/or algae, and a growth accelerator (col 1, lines 36-50). The microorganism can be
10 *Bacillus subtilis* (col 2, line 1). The microorganism can be microencapsulated in the form of a free flowing powder that is mixed with the accelerator (col 3, lines 24-34).

Yamasaki et al disclose treating waste water with a biologically activated charcoal prepared by propagating a microorganism in the
15 charcoal. When treating waste water, the charcoal adsorbs chemical substances and the adsorbed substances are decomposed by the microorganism (col 1, lines 28-40, and col 7, lines 14-21).

DeFilippi discloses a support containing a particulate adsorbent and microorganism for removal of pollutants from waste water. The
20 adsorbent can be coal, carbon black or activated carbon (col 34, lines 24-26). The microorganism degrades a pollutant. The adsorbent acts as a buffer by adsorbing excess pollutant, and when pollutant concentration decreases releases pollutant into solution for the microorganism to degrade leaving pollutant (abstract and col 6, lines
25 16-64).

Art Unit: 1651

Bair et al disclose remediation of aqueous streams using absorbent biocatalyst beads containing activated carbon and bacteria. The activated carbon adsorbs an organic contaminant, and the bacteria metabolize the contaminant (col 3, lines 5-16).

5 Wakjer et al as disclose controlling algae in water by adding to the water a bacteria and a carrier (col 11, lines 20-38).

 Hiatt discloses a bacterial preparation for treating water to denitrify the water. The microorganism can be *Bacillus subtilis* (col 3, lines 9-10). The microorganism is in a mixture containing a carbon
10 based carrier (col 7, lines 28-30).

 It would have been obvious to combine charcoal with the *Bacillus subtilis*-containing free flowing powder used by Mehta to control pollutants in water to obtain the function of the charcoal to adsorb pollutants as suggested by Yamasaki et al and DeFilippi or Bair et al
15 when treating water with a combination microorganism and charcoal or activated carbon to remove pollutants. It would have been apparent from Iijima that charcoal can be used in combination with *Bacillus subtilis* for water treatment. It would have been expected from the references that presence of charcoal in combination with *Bacillus*
20 *subtilis* will remove pollutants more effectively than when using *Bacillus subtilis* alone. Mixing charcoal with the microorganism-containing powder of Mehta will inherently result in a composition that is hydrophobic and can be distributed over water as claimed. If
25 charcoal with the microorganism-containing powder of Mehta by

Art Unit: 1651

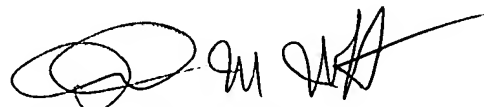
disclosing treating water with a combination of microorganism and carrier.

Conclusion

Any inquiry concerning this communication or earlier
5 communications from the examiner should be directed to David M. Naff
whose telephone number is 571-272-0920. The examiner can normally be
reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful,
the examiner's supervisor, Mike Wityshyn can be reached on 571-272-
10 0926. The fax phone number for the organization where this
application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be
obtained from the Patent Application Information Retrieval (PAIR)
system. Status information for published applications may be obtained
15 from either Private PAIR or Public PAIR. Status information for
unpublished applications is available through Private PAIR only. For
more information about the PAIR system, see [http://pair-](http://pair-direct.uspto.gov)
direct.uspto.gov. Should you have questions on access to the Private
PAIR system, contact the Electronic Business Center (EBC) at 866-217-
20 9197 (toll-free).



David M. Naff
Primary Examiner
Art Unit 1651